

We claim:

1. A diol based heat transfer fluid for use in a heat exchange system, said heat transfer fluid comprising:

(a) a first diol consisting of ethylene glycol;

(b) at least one second diol, wherein the second diol acts as an antidote for ethylene glycol poisoning when it is mixed with ethylene glycol, and wherein the second diol has a boiling point above approximately 150°C; and

(c) at least one corrosion inhibitor additive that is soluble in the first and second diols.

2. The heat transfer fluid of claim 1, wherein the corrosion inhibitor additive is selected from the group consisting of a molybdate salt, a nitrate salt and an azole.

3. The heat transfer fluid of claim 1, wherein the diols comprise from about 85 percent by weight to about 99.85 percent by weight of the heat transfer fluid.

4. The heat transfer fluid of claim 1, wherein the second diol is propylene glycol.

5. The heat transfer fluid of claim 1, wherein propylene glycol comprises from about 30 percent by weight to about 100 percent by weight of the total weight of the diols, and ethylene glycol comprises from about 0 percent by weight to about 70 percent by total weight of the total weight of the diols.

6. The heat transfer fluid of claim 1, wherein the corrosion inhibitor is comprised of a molybdate salt in a concentration of between about 0.05 percent to about 5 percent by weight of the total weight of the heat transfer fluid.

7. The heat transfer fluid of claim 1, wherein the corrosion inhibitor is comprised of a nitrate salt in a concentration of between about 0.05 percent to about 5 percent by weight of the total weight of the heat transfer fluid.

8. The heat transfer fluid of claim 1, wherein the corrosion inhibitor is comprised of an azole in a concentration of between about 0.05 percent to about 5 percent by weight of the total weight of the heat transfer fluid.

9. The heat transfer fluid of claim 6, wherein the molybdate salt is sodium molybdate.

10. The heat transfer fluid of claim 7, wherein the nitrate salt is sodium nitrate.

11. The heat transfer fluid of claim 8, wherein the azole is tolyltriazole.

12. The heat transfer fluid of claim 1, wherein the corrosion inhibitor is comprised of at least one of (i) sodium molybdate in a concentration between about 0.05 percent by weight to about 5 percent by weight of the total weight of the heat transfer fluid, (ii) sodium nitrate in a concentration between about 0.05 percent by weight to about 5 percent by weight of the total

5 weight of the heat transfer fluid, and (iii) tolyltriazole in a concentration between about 0.05 percent by weight to about 5 percent by weight of the total weight of the heat transfer fluid.

13. The heat transfer fluid of claim 1, wherein

(a) ethylene glycol comprises about 70 percent by weight of the total weight of diols in the heat transfer fluid;

5 (b) propylene glycol comprises about 30 percent by weight of the total weight of diols in the heat transfer fluid;

(c) sodium molybdate comprises about 0.5 percent by weight of the total weight of the heat transfer fluid;

(d) sodium nitrate comprises about 0.5 percent by weight of the total weight of the heat transfer fluid; and

10 (e) tolyltriazole comprises about 0.5 percent by weight of the total weight of the heat transfer fluid.

14. A diol based heat transfer fluid for use in a heat exchange system comprising at least one diol having a boiling point above approximately 150°C, and means for providing an antidote for ethylene glycol poisoning when it is mixed with ethylene glycol.

15. The heat transfer fluid of claim 14, wherein the antidote to ethylene glycol poisoning is propylene glycol.

16. The heat transfer fluid of claim 14, further comprising at least one corrosion

inhibitor additive that is soluble in the diols in the heat transfer fluid.

17. The heat transfer fluid of claim 16, wherein the corrosion inhibitor additive is selected from the group consisting of a molybdate salt, a nitrate salt and an azole.

18. The heat transfer fluid of claim 16, wherein the diols comprise from about 85 percent by weight to about 99.85 percent by weight of the heat transfer fluid.

19. The heat transfer fluid of claim 16, wherein the corrosion inhibitor is comprised of a molybdate salt in a concentration of between about 0.05 percent to about 5 percent by weight of the total weight of the heat transfer fluid.

20. The heat transfer fluid of claim 16, wherein the corrosion inhibitor is comprised of a nitrate salt in a concentration of between about 0.05 percent to about 5 percent by weight of the total weight of the heat transfer fluid.

21. The heat transfer fluid of claim 16, wherein the corrosion inhibitor is comprised of an azole in a concentration of between about 0.05 percent to about 5 percent by weight of the total weight of the heat transfer fluid.

22. The heat transfer fluid of claim 19, wherein the molybdate salt is sodium molybdate.

23. The heat transfer fluid of claim 20, wherein the nitrate salt is sodium nitrate.

24. The heat transfer fluid of claim 21, wherein the azole is tolyltriazole.

25. The heat transfer fluid of claim 16, wherein the corrosion inhibitor is comprised of at least one of sodium molybdate in a concentration between about 0.05 percent by weight to about 5 percent by weight of the total weight of the heat transfer fluid, sodium nitrate in a concentration between about 0.05 percent by weight to about 5 percent by weight of the total weight of the heat transfer fluid, or tolyltriazole in a concentration between about 0.05 percent by weight to about 5 percent by weight of the total weight of the heat transfer fluid.

26. The heat transfer fluid of claim 14, wherein at least one diol is ethylene glycol.

27. A method for rendering an ethylene glycol based heat transfer fluid non-toxic comprising the steps of:

- (a) providing an ethylene glycol based heat transfer fluid; and
- (b) adding a sufficient amount of a diol that acts as an antidote for ethylene glycol poisoning to render the heat transfer fluid non-toxic.

28. The method of claim 27, wherein the diol that acts as an antidote for ethylene glycol poisoning comprises at least 30 percent by weight of the heat transfer fluid.

29. The method of claim 28, wherein the diol that acts as an antidote for ethylene glycol is propylene glycol.